Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

This first investigated Asiatic species proves to be of great interest, as the following summary of results will show. The prothallium is exceedingly variable in its early stages, and of special interest is the occasional occurrence of a "primary tubercle" comparable to that of *Lycopodium cernuum.* The lobes of the prothallium are always erect and very close together, both in nature and in a darkened room, so that this upright position holds no relation to the amount of light. One of the striking features of the prothallium is its radial symmetry, which disposes of the claim that the fundamental difference between the prothallium of *Lycopodium* and of *Equisetum* is that the latter is not radial, but dorsiventral. The prothallium of this species also proves to be much larger than the largest that have yet been found in the genus. There are no male prothallia, but sometimes prothallia do not produce antheridia, and therefore are female. The antheridia resemble those of *Lycopodium* in position, general structure, and paraphyses. The archegonium has a single neck canal cell, which is also a feature of resemblance to *Lycopodium cernuum.* The author reaches the general conclusion that there is a clear affinity with the prothallium of *Lycopodium cernuum*, and that there is no more difference between the two prothallia than is already known to occur among the species of *Lycopodium.*—J. M. C.

The embryogeny of Balanophora.—The researches of TREUB and LOTSY on the embryogeny of the Balanophoraceae are well known. In *Balanophora* they found the four nuclei in the antipodal end of the sac, and also the synergids and egg degenerating as soon as the sac reached the fertilization stage; the remaining micropylar polar nucleus gave rise to a cellular endosperm, from one of whose cells the embryo developed.

ERNST'S studies on the embryogeny of saprophytic forms led him to suspect that there might be a simpler explanation of the origin of the embryo of *Balanophora.* A reinvestigation[16] confirmed the previous accounts of the origin and development of the embryo sac, the degeneration of the antipodals and the synergids, and the formation of a cellular endosperm from the micropylar antipodal; but it also showed that the embryo is developed from the egg. The development, however, begins late, after the egg is surrounded by cellular endosperm, and it was this behavior which misled both TREUB and LOTSY. There is no fertilization in either *Balanophora globosa* or *B. elongata.* Both are parthenogenetic. The development of the sac shows the diploid number of chromosomes.—CHARLES J. CHAMBERLAIN.

Experimentation in plant geography.—MASSART[17] has given emphasis to the fact that plant geography has hardly kept abreast of other branches of biological science on account of the lack of experimental methods of investigation, and he has consequently undertaken to indicate certain classes of problems which are demanding experimental solution. Certain species, for example, occupy habitats so diverse that there seems legitimate ground for doubting whether the different forms are specifically identical. Amphibious species of *Polygonum* furnish striking examples of form variation and specific relations only to be determined by extensive experimental cultures. Here he recommends that "accommodations" be limited to transformations of individuals in response to changed environment, and "adaptation" to those of species, the former not being hereditary, but the latter being transmitted to offspring. The author also urges the investigation by experimental methods of all examples of apparent multiplicity of origin of species, and of natural hybrids and mutations.—GEO. D. FULLER.

---

[16] ERNST, A., Embryobildung bei *Balanophora.* Flora **106**:129–158. *pls. 1, 2.* 1913.

[17] MASSART, J., Le role de l'éxperimentation en géographie botanique. Rec. Instit. Bot. Léo Errera **9**:68–90. 1913.

Vascular anatomy of the Cycadophytes.—Miss BANCROFT[18] has traversed the evidence of the relationship between the vascular anatomy of the Cycadofilicales and the Cycadales. The particular vascular type of Cycadofilicales from which the cycad line has developed is the problem to which at least three answers have been given. SCOTT favors origin from the *Lyginodendron* type; WORSDELL from the *Medullosa* type; and Miss DE FRAINE from a situation represented by *Sutcliffia*, which rather mediates between the two preceding views. Miss BANCROFT has done good service in bringing the whole evidence of this critical situation together, and has reached the conclusion that the *Lyginodendron* and *Medullosa* types have arisen from a common stock, and that from this stock the cycad line has arisen, touching very close to the simpler forms of the *Medullosa* group. When competent opinion differs as to the particular origin of a given group, it will generally be found that the dispute can be arbitrated by referring all of the groups to a common origin.—J. M. C.

Leaf and root.—Many find difficulty in identifying a stem in some vascular plants. CHAUVEAUD[19] diagrams the first leaf and root of *Ceratopteris thalictroides* and calls the combination a *phyllorhiza;* the second leaf with its root constitutes the second *phyllorhiza*, etc. The fused portions are commonly called the stem. *Cordyline anstralis* presents a similar condition. In dicotyls, the first two phyllorhizas are not separated in time or space; they have a fused portion, the stem, and a common root. Why it should make any difference as to whether the fusion exists from the start, or occurs a little later, is not entirely clear. However, it must be admitted that even in some plants with two cotyledons, like the cycads, the two categories, leaf and root, seem sufficient for the

---

[18] BANCROFT, NELLIE, Pteridosperm anatomy and its relation to that of the cycads. New Phytologist **13**:1 and **2**:41–68. *figs. 20.* 1914.

[19] CHAUVEAUD, GUSTAVE, La constitution et l'évolution morphologique du corps chez les plantes vasculaires. Compt. Rend. **158**:343–346. *figs. 8.* 1914.